



June 15, 2015

Congressional Committees

Nuclear Command, Control, and Communications: Update on DOD's Modernization

Nuclear command, control, and communications (NC3) is a large and complex system comprised of numerous land-, air-, and space-based components used to assure connectivity between the President and nuclear forces. The current NC3 architecture consists of components that support day-to-day nuclear and conventional operations prior to a nuclear event as well as those that provide survivable, secure, and enduring communications through all threat environments. Though some NC3 systems are specific to the nuclear mission, most support both nuclear and conventional missions. The Department of Defense (DOD) is executing several acquisition efforts to modernize elements of NC3.

Since 2013, GAO has released several products related to its review of NC3 as required by congressional defense committees. For example, the Senate Armed Services Committee report accompanying a bill for the National Defense Authorization Act for Fiscal Year 2013 included a provision for GAO to assess Department of Defense (DOD) efforts to sustain and improve the NC3 system.¹ We addressed this provision initially through a report on the Family of Advanced Beyond Line-of-Sight Terminals in December 2013, and then subsequently issued a classified report on operational assessments of NC3 in February 2014. We also provided a classified briefing to the Senate Armed Services Committee staff on the extent to which DOD is addressing known NC3 gaps or weaknesses and has taken steps to transform the current NC3 to provide improved capabilities in the future.²

This report is in response to the Senate Armed Services Committee report accompanying a bill for the Carl Levin National Defense Authorization Act for Fiscal Year 2015,³ which included provisions for GAO to (1) update recent prior assessments of NC3 acquisition programs, and (2) review the U.S. Strategic Command's ongoing effort to update the Mission Planning and Analysis System with briefings to the congressional defense committees.⁴

To address our objectives, we focused our review on seven NC3 programs or efforts that support the full range of NC3 functions that pertain to planning, decision making, situation monitoring, force management, and force direction. Given the large number and wide range of programs that either directly or indirectly support NC3-related missions, we chose to focus on key NC3 programs or efforts that are among the largest in terms of estimated cost and/or that

¹S. Rep. No. 112-173, at 199, accompanying S. 3254, 112th Cong. (2nd Sess. 2012).

²GAO, *Nuclear Command, Control and Communications: Review of DOD's Current Modernization Efforts*, GAO-14-414R (Washington, D.C.: Mar. 18, 2014).

³S. Rep. No. 113-176, at 240, 243, accompanying S. 2410, 113th Cong. (2nd Sess. 2014).

⁴The Mission Planning and Analysis System supports developing nuclear and conventional force application plans.

Report Documentation Page			Form Approved OMB No. 0704-0188	
<p>Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>				
1. REPORT DATE 15 JUN 2015	2. REPORT TYPE	3. DATES COVERED 00-00-2015 to 00-00-2015		
4. TITLE AND SUBTITLE Nuclear Command, Control, and Communications: Update on DOD's Modernization			5a. CONTRACT NUMBER	
			5b. GRANT NUMBER	
			5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)			5d. PROJECT NUMBER	
			5e. TASK NUMBER	
			5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Government Accountability Office, 441 G Street NW, Washington, DC, 20548			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)	
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF: a. REPORT b. ABSTRACT c. THIS PAGE unclassified unclassified unclassified			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 6
				19a. NAME OF RESPONSIBLE PERSON

enable senior leader communications or other critical capabilities. Specifically, we reviewed (1) Mission Planning and Analysis System; (2) Family of Advanced Beyond Line-of-Sight Terminals; (3) Presidential and National Voice Conferencing; (4) Phoenix Air-to-Ground Communications Network; (5) Common Very Low Frequency Receiver; (6) Global Aircrew Strategic Network Terminal; and (7) the Minuteman Minimum Essential Emergency Communications Network Program Upgrade.

We provided an in-depth classified briefing to congressional defense committee staff on the results of our review in April 2015. For the seven NC3 programs or efforts under our review, we provided information on (1) the acquisition strategy for developing and fielding the programs and efforts and how they are expected to address known capability gaps or deficiencies; (2) the progress made in meeting cost, schedule, and performance goals; and (3) the risks, if any, in meeting the goals and the actions planned or being taken to mitigate those risks. In addition, we found that while the programs and efforts have made progress toward developing and fielding systems as well as meeting cost, schedule, or performance goals, known capability gaps or deficiencies remain. For example, development of key satellite communication terminals for strategic bomber aircraft has been deferred by several years. Other programs we reviewed have planned follow-on increments intended to address known capability gaps or deficiencies; however, these increments are not yet funded. Further details remain classified.

To answer our key questions for each of the NC3 programs or efforts under review, we collected and reviewed DOD and other assessments of NC3. We also conducted interviews with program officials, as well as cognizant officials from the Air Force Strategic Deterrence and Nuclear Integration Office; Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics; U.S. Strategic Command; DOD Office of the Chief Information Officer; Office of the Director, Operational Test & Evaluation; DOD Cost Assessment and Program Evaluation; Defense Information Systems Agency; Air Force Global Strike Command; and Johns Hopkins University Applied Physics Laboratory to gain information on the expected capabilities of each NC3 program or effort under our review as well as how these capabilities contributed to the critical missions served by NC3. We gathered and reviewed contractual, technical, and programmatic documentation to assess the acquisition and operational strategy for these programs or efforts. We reviewed budget and contract documentation to identify and compare expected and actual costs. We reviewed assessments of NC3 to verify potential schedule and capability risks as well as other potential issues.

We conducted this performance audit from October 2014 to June 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives.

Agency Comments

We provided a draft of this report to DOD for comment. The department responded that it had no formal comments.

We are sending copies of this report to appropriate congressional committees and the Secretary of Defense. This report will be available at no charge on our website at <http://www.gao.gov>.

Should you or your staff have questions concerning this report, please contact me at (202) 512-4841 or at chaplainc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report were John Oppenheim, Assistant Director; Andrew Berglund; Andrea Bivens; Meredith Allen Kimmett; Jay Tallon; Gwyneth Woolwine; and Marie Ahearn.

A handwritten signature in black ink, appearing to read "Cristina Chaplain".

Cristina Chaplain
Director, Acquisition and Sourcing Management

List of Committees

The Honorable John McCain
Chairman
The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Mac Thornberry
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

The Honorable Thad Cochran
Chairman
The Honorable Richard Durbin
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Rodney Frelinghuysen
Chairman
The Honorable Pete Visclosky
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

(121238)

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website (<http://www.gao.gov>). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to <http://www.gao.gov> and select "E-mail Updates."

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <http://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#). Subscribe to our [RSS Feeds](#) or [E-mail Updates](#). Listen to our [Podcasts](#). Visit GAO on the web at www.gao.gov.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Website: <http://www.gao.gov/fraudnet/fraudnet.htm>

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548



Please Print on Recycled Paper.